C Bay City – Midland/Saginaw/Flint/Detroit

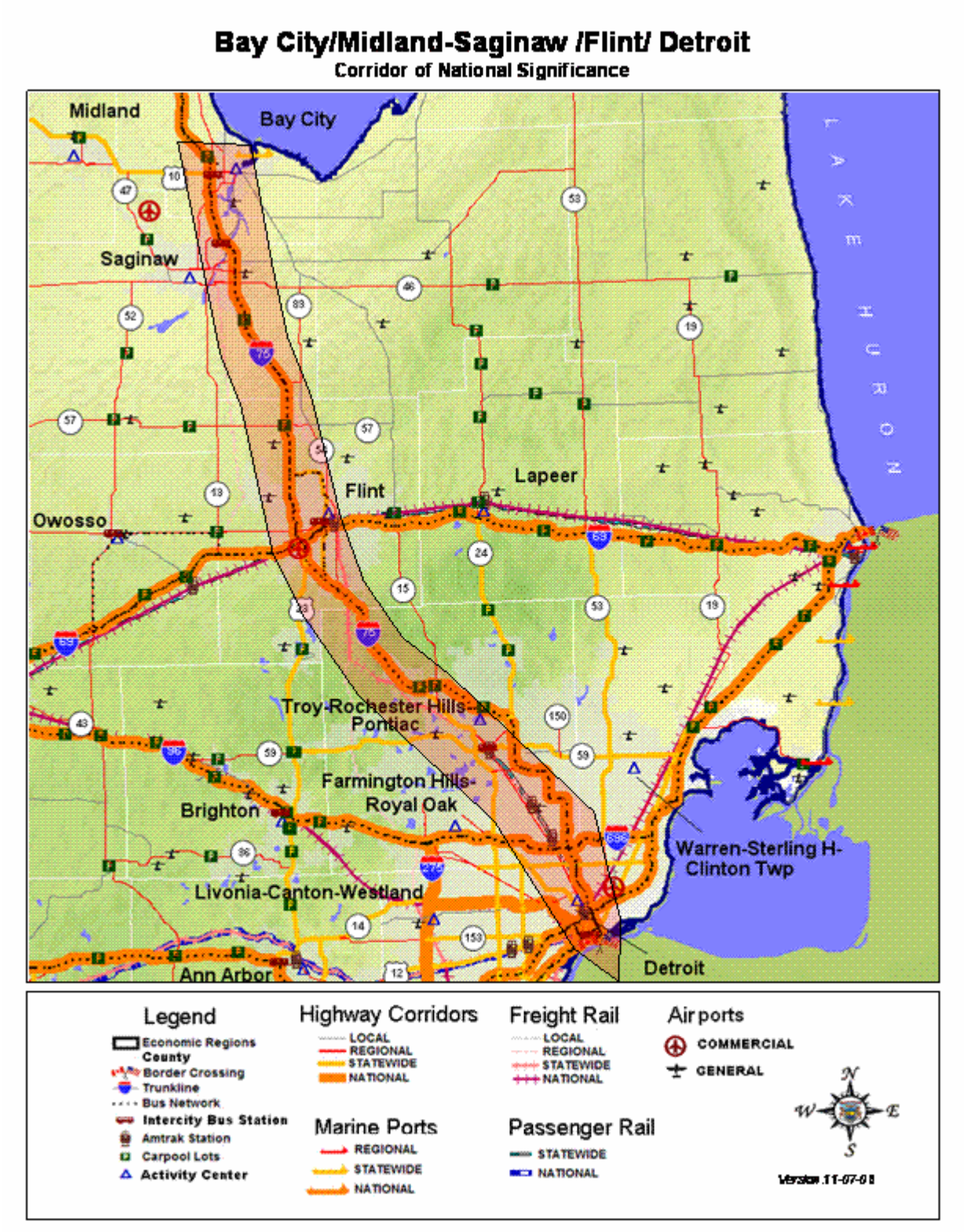
3.3 C Bay City–Midland/Saginaw/Flint/Detroit

The Bay City-Midland/Saginaw/Flint/Detroit National/International Corridor of Highest Significance begins at US-10, follows I-75 south to Detroit, and ends at I-94. This is the continuation of the Sault Ste. Marie/Bay City Corridor. It includes Bay, Saginaw, Genesee, Oakland, and Wayne Counties.

3.3.1 Profile and Map

This 108.8-mile southern segment and continuation of the Sault Ste. Marie/Bay City Corridor continues north-south into Detroit and the International Border Crossings. As it travels south it passes through some of the most highly urbanized and industrial areas of Michigan. The corridor connects seven *MI Transportation Plan* activity centers to Canada, the midwest and southern US.

Figure 5: Bay City-Midland/Saginaw/Flint/Detroit



3.3.2 Estimate of Corridor Value

The value of this corridor to the state of Michigan is defined based on the people, businesses, industries, and activities it supports together with how it is integrated and connected to the greater Michigan transportation system and activity centers inside and outside the state. In comparing many characteristics of this corridor to other *MI Transportation Plan* Corridors of Highest Significance, including the population and number of jobs it supports, this corridor would rank among the top three in its value to Michigan's economy in comparison value with the other 18 *MI Transportation Plan* Corridors.

The Bay City-Midland Saginaw/Flint/Detroit *MI Transportation Plan* Corridor of Highest Significance supports:

- The corridor accounts for 5.8 percent of the total statewide ton miles and 5.2 percent of the total statewide value miles of truck freight;
- The corridor accounts for 2.1 percent of total statewide rail-ton miles and 1.2 percent of rail-value miles;
- A corridor average of 2.4 million tons and $1.9 billion worth of freight moving by rail in 2003;
- Seven of *MI Transportation Plan's* 50 activity centers;
- Five of *MI Transportation Plan's* economic regions;
- A total average daily traffic (ADT) (corridor average) of 83,000 vehicles, the third highest of any *MI Transportation Plan* corridor; a projected 32 percent ADT growth by 2030;
- Connections to International Border Crossings in Detroit handling $130 billion in freight;
- Connections to five *MI Transportation Plan* National/International Corridors Highest Significance and three Statewide Corridors of Highest Significance (value of freight; number of vehicles);
- Key linkages to the midwest as well as the rest of the nation;
- Approximately 164,500 students enrolled in post secondary schools;
- Three commercial airports (883,458 enplanements) in Saginaw, Flint, and Detroit (Note: the Detroit Metropolitan Airport with 1.8 million enplanements is reported as being supported by the I-94 corridor);
- A portion of Amtrak that serves approximately 66,000 passenger-trips/year;
- Major marine cargo ports in Detroit, Bay City and Saginaw that process over 19 million tons;
- Approximately 32 million person days of tourism activity per year (the third highest among the Corridors of Highest Significance in the state); and

- Nine state parks and over 13,000 people employed in gaming centers - this is the highest number of gaming center employees of any *MI Transportation Plan* corridors.

Table 10: Population/Employment/ADT within a 20-mile geographic area around Corridor Bay City–Midland–Saginaw/Flint/Detroit

(108.8 miles)	*2005*	*2030*
Population within band	3,249,200	3,272,530
Employment within band	1,898,520	1,992,600
Total daily vehicle-miles of travel	9,040,820	11,896,070
Total average daily traffic (corridor average)	83,060	109,300
Highest total ADT	188,100	218,230
Lowest total ADT	30,680	42,510
Passenger average daily traffic (corridor average)	76,230	100,320
Highest passenger ADT	175,400	209,110
Lowest passenger ADT	27,410	37,970
Commercial average daily traffic (corridor average)	6,840	8,980
Highest commercial ADT	12,700	14,760
Lowest commercial ADT	3,170	4,310

Table 11: Corridor Truck Freight Totals

BayCity/Detroit

Miles (109.33)	*2003 Tons*	*2013 Tons*	*2003 Value*	*2013 Value*
Average	27,925,390	29,944,480	$63,491,008,166	$75,271,131,774
High	43,660,060	47,536,560	$92,370,326,115	$110,148,279,648
Low	14,665,660	15,589,370	$37,969,629,308	$44,560,164,628

Table 12: Corridor Rail Freight Totals

BayCity/Detroit

Track Miles (129.18)	*2003 Tons*	*2013 Tons*	*2003 Value*	*2013 Value*
Average	2,411,400	2,576,060	$1,877,848,619	$1,590,286,397
High	4,933,990	5,315,660	$3,978,351,008	$2,798,590,912
Low	197,040	122,600	$112,297,008	$116,338,984

Source: Michigan Department of Transportation Statewide and Urban Travel Analysis Section

Table 13: Bay City-Midland/Saginaw/Flint/Detroit – Activity Centers Summary

Measure	*Year*	*Bay City*	*Midland*	*Saginaw*	*Flint*	*Troy-Rochester Hills- Pontiac*	*Farmington Hills-Royal Oak*	*Detroit*	*Total Value*
Total Activity Center Population	2005	108,759	85,817	207,150	445,583	551,596	665,327	987,133	3,051,365
Total Employment	2005	54,851	47,702	120,429	222,780	414,213	540,791	364,229	1,764,995
Retail Employment	2005	12,766	8,595	25,216	43,652	65,689	89,556	42,642	288,116
Hotel Units	2000	707	792	2,754	2,275	3,807	6,161	2,463	18,959
Revenue	2004	18,837	478,569	553,966	387,264	1,710,557	3,139,411	2,242,809	8,531,413
Number of National Park	2005								
Number of State Park Location	2005	1				7	1		9
Gaming Centers Employment	2005							13,100	13,100
Person Trips	2004	1,373,398	879,424	5,127,400	2,203,328	2,641,813	1,481,852	3,640,968	17,348,183
Person Days	2004	2,306,973	2,195,728	7,526,121	4,288,798	4,914,375	2,758,827	8,062,390	32,053,212
Student Population	2005	10,459	3,748	9,448	24,120	30,177	29,899	56,660	164,511
Number of Technology Centers	2006					1		1	2
Number of Facilities	2005	1	1	5	5	8	7	11	38
Number of Facilities	2005	1		3	3	3		10	20
Number of Facilities	2005								
Passenger Enplanments	2005			201,322	557,848			124,288	883,458
Number of Passengers	2005				11,384	7,314	19,915	27,194	65,807
Number of Facilities	2005	2	4	5	4	5		963	983
Passenger Stations	2005	1		1	1	1		1	5
Cargo Tonnage	2005			342	9,609			420	10,371
Cargo Tonnage	2003	3,162,500		2,176,500				14,017,000	19,356,000
Number of Border Crossings	2005							4	4

3.3.3 Corridor Analysis

This corridor transitions from its rural/small urban northern character near Bay City to the heavily urbanized sections in Flint and within downtown Detroit. It supports travel for local residents, businesses and tourists from inside Michigan and outside the state, an International Border Crossing, and north-south long-distance freight travel. Travel is available on all modes.

Primary roadway concerns are heavy congestion, a trend toward a reverse commute pattern as the population moves out of urban areas, maintenance of traffic during construction, and the need for reconstruction, modernization and improved access. There is a need inside the Detroit urban area for improved intra-city commuter rail or public transit. Currently travel within Detroit is primarily automobile dependent.

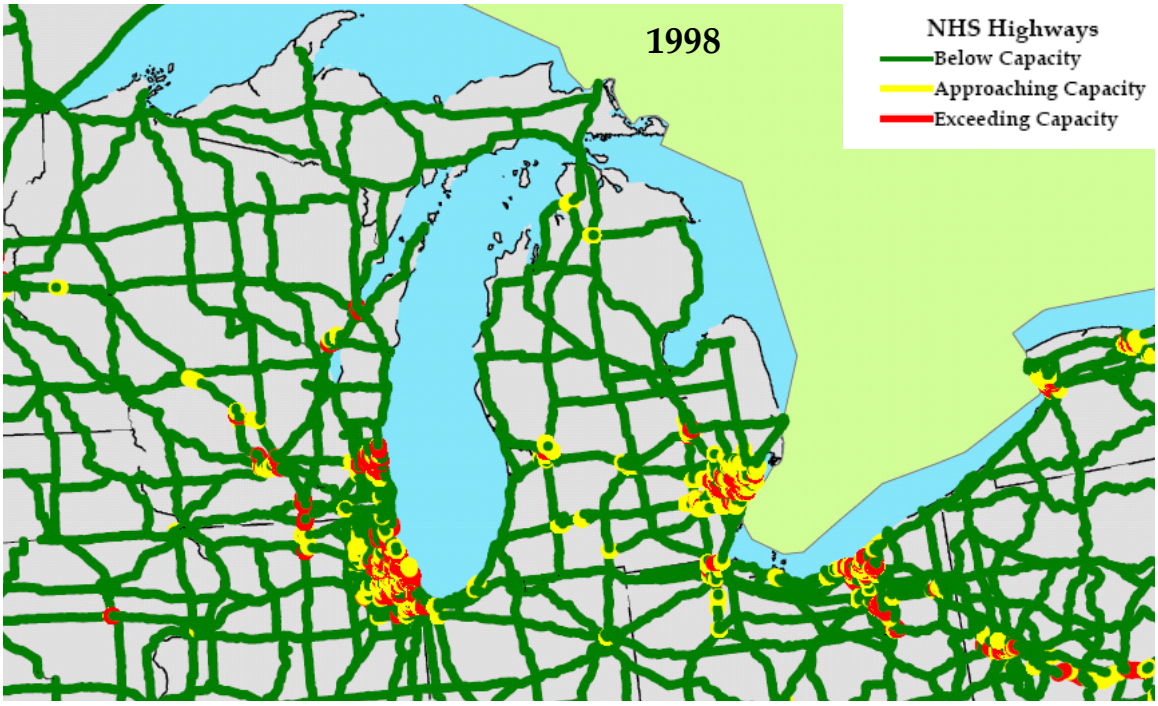
It should also be noted that the FHWA, October 2005 National Assessment of Freight Bottlenecks on Highways (http://fhwainter.fhwa.dot.gov/policy/otp/bottlenecks) ranked three interchanges on this corridor as among the worst (among the top 120) in the nation for Annual hours of delay for all trucks. These include I-94 at I-75, Seven-Mile Road at I-75, and I-75 at Davidson Highway (M-8). **Figure 6** presents FHWA maps showing national existing and projected peak congested locations.

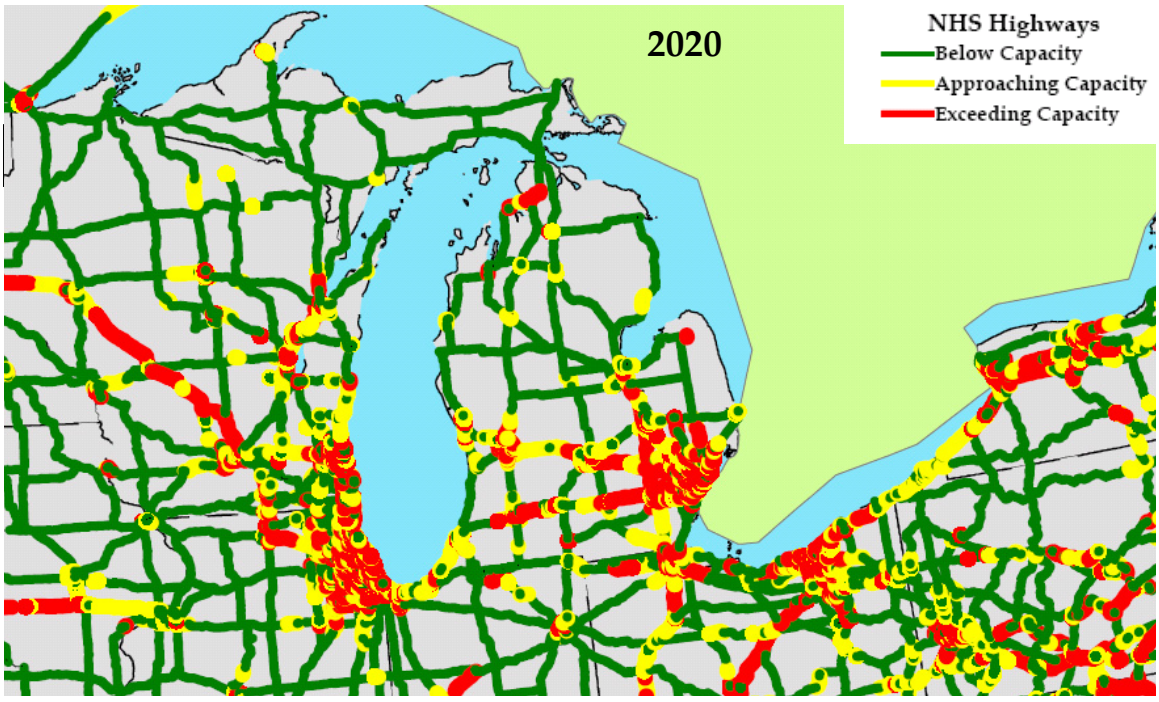
Intercity bus serves the entire corridor and is unsubsidized south of Bay City. From Flint to Detroit, the service is provided by Greyhound Lines, whose services nationwide have been subject to significant reduction. Intermodal terminals that connect transit to intercity bus and/or passenger rail are available in several locations within the corridor. Other than Saginaw County, countywide transit service is available throughout the corridor. Limited regional transit services are provided in Bay City-Saginaw-Midland area via cooperative relationships among the various providers. Cross-jurisdictional passenger transportation is provided by the Genesee County transit agency via regional fixed routes that serve neighboring counties. MichiVan vanpools are increasingly becoming a means for work transportation within the corridor.

This corridor serves many Michigan jobs and industries. Primary movement of goods along this corridor includes machinery, metal products, agriculture, non-metallic metals, chemicals, and transportation equipment. Opportunities for this corridor include the potential for economic growth. By reducing the hours of delay on the corridor, existing business will derive a direct savings in time and money. The corridor will also become more attractive as a place to locate new or expand businesses.

Barriers to movement, including missing or deficient links and existing and future physical transportation system gaps include the identified freight bottlenecks, numerous bridge clearances and the quality of the pavement and bridge condition throughout the corridor. Intermodal connectivity between highway, rail, and water ports also need improvements.

Figure 6: National Highway System Estimated Peak Congestion 1998 and 2020





3.3.4 Corridor Objectives

This corridor serves close to one-third of Michigan's jobs and population. Objectives for the corridor are to:

- Provide for safe and efficient travel by reducing congestion and delay, and improving intersections and interchanges;
- Improve roadway and bridge conditions (vertical clearance, weight capacity, lane width) to current design standards;
- Expand water port and rail freight opportunities and intermodal connectivity;
- Provide more public transit opportunities within urban areas;
- Expand ITS and operational improvements within the corridor;
- Preserve existing transit and intercity bus services;
- Support expansion of public transit opportunities to include countywide service for all counties; and
- Consider within urbanized areas how this corridor operates from a network perspective.

3.3.5 Broad Policy-Based Corridor Strategies

The following strategies may help to advance these corridor-specific objectives. Detailed examples of capital projects, programs, and policies that may be used to implement the strategies identified below are provided in **Appendix D** to the *Corridors and International Borders Report.* MDOT will:

- Highway;
  - Capacity – Consistent with commitments within the regional MPO long-range plans, MDOT will widen I-75 between M-59 and Eight-Mile Road in Oakland County, and widen I-75 north of I-675 in Saginaw and Bay Counties;
  - Modernization – bring bridges and roadway geometrics to current design standards;
  - Maintenance and Rehabilitation – implement scheduled and preventive maintenance programs;
- ITS – include or expand ITS at key junctions through this corridor including but not limited to Bay City, Saginaw, Flint, and portions of Oakland County;
- Continued participation in the metro Detroit Regional Concept for Transportation Operations (RCTO). A RCTO is the collaboration and coordination between transportation system managers responsible for operating the transportation system on a day-to-day basis.
- Carpool lots – improve or add carpool lots between Saginaw and the Detroit metropolitan area on I-75;

- Access Management and Land Use – work with local governments to encourage land use patterns that may reduce the need for additional intersections and interchanges and will support transit oriented development patterns;
- Develop and test Vehicle Information Integration (VII) systems within this corridor;
- Seek opportunities and implement low-cost operational improvements to increase roadway corridor mobility. These include but are not limited to geometric improvement, interchange improvements, ramp extensions, turning lanes, signal timing, visitor-friendly signage, improved incident management, and maintenance of traffic practices during construction projects;
- Continue to strive to maintain good pavement conditions along all of its trunkline corridors;
- Add or enhance long-distance bicycle trails;
- Integrate multi-modal transportation systems throughout this corridor including but not limited to incorporating carpool lot facilities, and bicycle and pedestrian facilities into future projects where feasible;
- Coordinate improvements and management practices with key local stakeholder groups along corridors;
- Develop strategies that can be implemented at the local level to innovate public transportation services to meet the unique needs/demands of the aging population;
- Support communication and coordination between local transit systems and between transit and intercity bus to improve connectivity and regional public transportation;
- Support coordination of transportation services and funding between local human service agencies and local transit agencies;
- Continue to support the MichiVan program to provide commuter alternatives;
- Continue to provide financial and technical assistance to local agencies to help preserve existing transit services;
- Monitor unsubsidized intercity bus service and plan for continued losses in Greyhound's services;
- Enhance cooperative, connectivity and coordination between intercity bus and passenger rail;
- Identify ways passenger rail service, alone or in coordination with intercity bus and/or local transit, can be used to assist workforce commuters and business trips in regional efforts;
- Work with intercity carriers and Travel Michigan to promote Michigan as a travel destination;

- Encourage opportunities for infrastructure improvements between rail freight and rail passenger that reduce congestion and provide for improved on time performance;
- Provide feeder bus services in accordance with the Midwest Regional Rail Initiatives as passenger rail services is improved and funding becomes available; and
- Promote intercity high-speed rail as a key component of a balanced transportation system by expanding the coverage of the Incremental Train Control System (ITCS) in the corridor.

D Muskegon/Grand Rapids/Lansing/Detroit

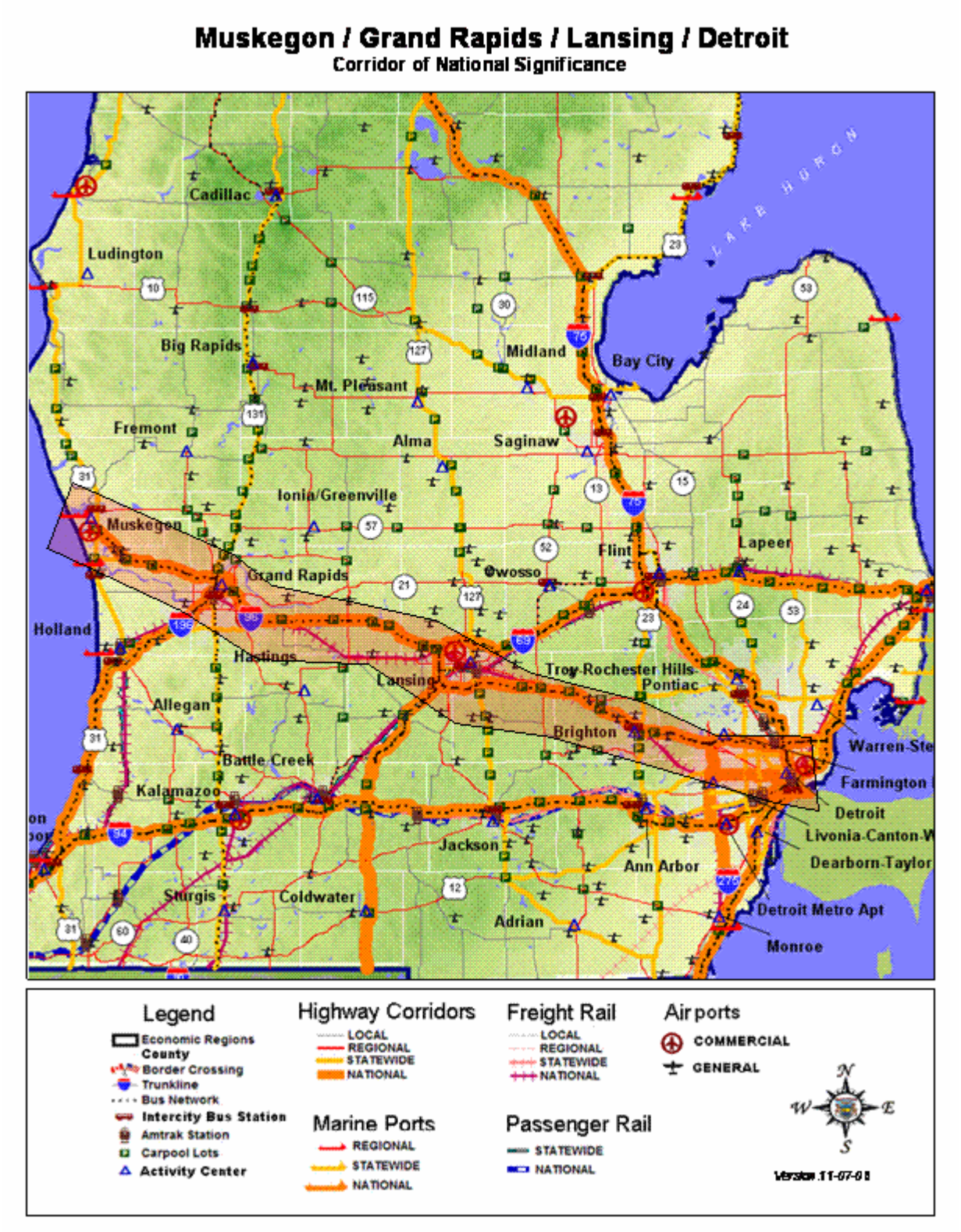
3.4 D Muskegon/Grand Rapids/Lansing/Detroit

The Muskegon/Grand Rapids/Lansing/Detroit National/International Corridor of Highest Significance crosses the Lower Peninsula. It begins at US-31 in Muskegon and follows I-96 east through Grand Rapids, Lansing, and Livonia ending at I-75 in Detroit. It includes Muskegon, Ottawa, Kent, Ionia, Clinton, Eaton, Ingham, Livingston, Oakland, and Wayne Counties.

3.4.1 Profile and Map

This 191.2-mile corridor provides the primary east-west connection between Michigan's largest cities and through its most densely populated urban areas. It connects seven *MI Transportation Plan* activity centers and crosses or links to nine of the 19 *MI Transportation Plan* Corridors of Highest Significance. In comparison to the other 18 *MI Transportation Plan* Corridors of Highest Significance, this corridor ranks first in many of the characteristics used to define its value to Michigan. The corridor area includes a diversity of trade and technology jobs, it begins and ends within Michigan serving and supporting Michigan-based business and commercial travel. While other corridors may carry more traffic or higher dollar values of freight passing through Michigan, this corridor focuses on connecting Michigan activity centers.

Figure 7: Muskegon/Grand Rapids/Lansing/Detroit Corridor



3.4.2 Estimate of Corridor Value

The value of this corridor to the state of Michigan is defined based on the people, businesses, industries, and activities it supports together with how it is integrated and connected to the greater Michigan transportation system and activity centers inside and outside the state. In comparison to the other 11 *MI Transportation Plan* Corridors of National Significance, this supports the most population and jobs.

The Muskegon/Detroit Corridor supports:

- Approximately (3.2 million people) 34 percent of Michigan's population and (2.3 million jobs) 40 percent of Michigan jobs are located within a 20-mile geographic area around this corridor, this is more than any other *MI Transportation Plan* Corridor of Highest Significance in the state;
- The corridor accounts for 6.8 percent of the total statewide ton miles and 8.1 percent of the total statewide value miles of truck freight;
- The corridor accounts for 9.5 percent of total statewide rail-ton miles and 10.2 percent of rail-value miles;
- Seven of Michigan's 50 *MI Transportation Plan* activity centers;
- Five of Michigan's 17 *MI Transportation Plan* economic regions;
- A average daily traffic (ADT) (corridor average) of 64,400 vehicles the fourth highest volumes of any *MI Transportation Plan* Corridor of Highest Significance;
- The second highest commercial ADT of all the *MI Transportation Plan* corridors (15,600 on I-96/I-275);
- and is projected to have a 44 percent growth in ADT by 2030;
- Connections to four *MI Transportation Plan* National/International Corridors of Highest Significance and five Statewide Corridors of Highest Significance;
- Connections to two Lake Michigan passenger and automobile ferries with connections to Wisconsin;
- Approximately 242,000 students enrolled in post-secondary institutions, the highest concentration of any *MI Transportation Plan* Corridor of Highest Significance;
- Close to 40 million person days of tourism activity per year (the second highest in the state);
- Four major commercial airports with 1.5 million enplanements (Grand Rapids, Detroit , Lansing, Muskegon);
- Three of the state's top commercial airports for air cargo, including Detroit, Grand Rapids and Lansing;

- Major marine cargo ports in Muskegon and Detroit handling approximately 18 million tons of cargo annually;
- Amtrak service for approximately 93,000 riders; and
- Nine state parks and 13,000 people employed in gaming centers.

Table 14: Population/Employment/ADT within a 20-mile geographic area around Corridor Muskegon/Grand Rapids/Lansing/Detroit

(191.2 miles)	*2005*	*2030*
Population within band	3,848,870	4,152,410
Employment within band	2,271,610	2,524,020
Total daily vehicle-miles of travel	12,313,940	17,761,540
Total average daily traffic (corridor average)	64,400	92,880
Highest total ADT	198,800	281,720
Lowest total ADT	20,830	27,120
Passenger average daily traffic (corridor average)	58,090	83,530
Highest passenger ADT	183,220	259,650
Lowest passenger ADT	18,360	23,900
Commercial average daily traffic (corridor average)	6,300	9,350
Highest commercial ADT	15,580	22,420
Lowest commercial ADT	2,470	3,220

Table 15: Corridor Truck Freight Totals

Muskegon/GR/Lansing/Detroit				
Miles (192.79)	*2003 Tons*	*2013 Tons*	*2003 Value*	*2013 Value*
Average	18,682,650	21,057,110	$56,244,575,399	$68,887,857,335
High	45,857,960	53,316,470	$164,674,278,412	$201,588,277,760
Low	7,842,340	8,806,750	$16,490,503,424	$19,742,267,136

Table 16: Corridor Rail Freight Totals

Grand Rapids/Lansing/Detroit (no Musk-GR)				
Track Miles (145.3)	*2003 Tons*	*2013 Tons*	*2003 Value*	*2013 Value*
Average	9,922,110	11,161,410	$14,443,998,413	$15,957,300,281
High	10,563,570	11,902,040	$14,573,475,252	$16,127,434,649
Low	7,323,060	7,968,790	$14,236,939,264	$15,665,414,456

Source: Michigan Department of Transportation Statewide and Urban Travel Analysis Section

Table 17: Muskegon/Grand Rapids/Lansing/Detroit – Activity Centers Summary

Activity	*Measure*	*Year*	*Muskegon*	*Grand Rapids*	*Lansing*	*Brighton*	*Farmington Hills-Royal Oak*	*Livonia*	*Detroit*	*Total Value*
URBAN										
Population	Total Activity Center Population	2005	229,154	663,754	463,240	181,531	665,327	427,728	987,133	3,617,867
COMMERCIAL										
General Economic Activity	Total Employment	2005	122,511	461,056	291,917	70,537	540,791	265,499	364,229	2,116,540
Retail Activity	Retail Employment	2005	22,531	79,198	51,735	15,670	89,556	60,723	42,642	362,055
TOURISM										
Hotel Capacity	Hotel Units	2000	1,403	6,118	3,846	616	6,161	2,871	2,463	23,478
Annual Lodging Use Tax revenue	Revenue	2004	309,999	1,766,118	557,604	77,355	3,139,411	1,056,803	2,242,809	9,150,099
National Park	Number of National Park	2005								
State Park	Number of State Park Location	2005	4		1	2	1	1		9
Gaming	Gaming Centers Employment	2005							13,100	13,100
Number of Visitors	Person Trips	2004	2,252,354	4,382,203	4,448,262	654,769	1,481,852	3,550,921	3,640,968	20,411,329
Length of Stay	Person Days	2004	4,704,827	8,392,678	6,770,637	975,687	2,758,827	7,862,983	8,062,390	39,528,029
EDUCATION/TECHNOLOGY CENTER										
Educational Centers	Student Population	2005	9,230	60,785	69,570		29,899	15,501	56,660	241,645
Smart Zones	Number of Technology Centers	2006	1	1	1				1	4
LIFE SCIENCE										
Hospitals	Number of Facilities	2005	3	6	3	1	7	3	11	34
CORRECTIONAL FACILITIES										
Prisons	Number of Facilities	2005	5	2	6	1		2	10	26
MILITARY BASE										
Military Base Center	Number of Facilities	2005								
PASSENGER FACILITIES										
Air Passenger	Passenger Enplanments	2005	36,298	1,047,223	310,924				124,288	1,518,733
Amtrak	Number of Passengers	2005		25,376	20,396		19,915		27,194	92,881
Car Pool	Number of Facilities	2005	7	10	13	11			963	1,004
Intercity Bus Station	Passenger Stations	2005	2	1	1	1			1	6
FREIGHT FACILITIES										
Air Cargo Ports	Cargo Tonnage	2005	13	22,263	14,779				420	37,475
Marine Ports	Cargo Tonnage	2003	3,674,000						14,017,000	17,691,000
INTERNATIONAL BORDER CROSSING										
Passenger and Freight	Number of Border Crossings	2005							4	4

3.4.3 Corridor Analysis

This corridor crosses southern Michigan and includes its largest cities and most populated urban areas. Travel is available on all modes in the corridor. The corridor supports 40 percent of Michigan's jobs and travel for local residents, businesses and tourists from inside Michigan and outside the state, and an International Border Crossing. Through its connectivity with other *MI Transportation Plan* Corridors of Highest Significance, it supports east-west long-distance travel throughout the state of Michigan.

The recently completed Paul B. Henry Freeway (M-6) that connects I-196 to US-131 to I-96 in the Grand Rapids area is a Statewide Corridor of Significance that provides a freeway connection in the Grand Rapids area for the I-96 and I-196 National Corridors and the US-131 Statewide Corridor. It provides improved mobility and travel options for the growing industrial areas in the southern metropolitan area, as well as improved access to the Gerald R. Ford International Airport. This route also provides congestion relief for numerous east-west local roads and state highways in the urbanized area. Primary roadway concerns are heavy congestion inside the urban area, a trend toward a reverse commute as the population moves out of urban areas into the suburbs, maintenance of traffic during construction, and the need for modernization and improved mobility.

It should also be noted that the FHWA, October 2005, *National Assessment of Freight Bottlenecks on Highways* (http://fhwainter.fhwa.dot.gov/policy/otp/bottlenecks) ranked two interchanges on this corridor as among the worst (among the top 120) in the nation for annual hours of delay for all trucks. These include I-96 at I-275 and the Southfield (M-39) at M-5 in Detroit. **Figure 6** in **Section 3.3.3** presents FHWA maps showing existing and projected peak congested locations.

This corridor serves existing Michigan jobs and key developing industries including the health-care, transportation equipment, metal products, food, and agricultural economic sectors. Opportunities for this corridor include the potential for economic growth in areas of health care, life sciences, and automotive and aviation technology. These types of jobs require professional and technical employees with more personal travel needs than heavy or high-volumes of freight. This corridor transverses the most rapidly growing counties within the state, including Oakland, Livingston, and Kent Counties. The corridor is expected to continue as a desirable and attractive place to locate or expand new and existing businesses with businesses with improvements and choices provided for personal travel.

Commercial service airports in Detroit, Grand Rapids, Lansing and Muskegon provide passengers with convenient access to larger hub airports with numerous national and international connections.

Intercity buses serve points throughout the corridor, unsubsidized; however, portions of the service are provided by Greyhound Lines, whose services nationwide have been subject to reductions. Intermodal passenger terminals that connect transit to intercity bus and/or passenger rail exist at several key points in the corridor. East-west intercity bus service connects with north-south intercity bus routes at Grand Rapids, Lansing, and Detroit.

Countywide transit is available in much, but not all portions of the corridor. Transit ridership is increasing in several key areas within the corridor. Urban area transit agencies have diverse services that are responsive to community needs. The establishment of regional rapid transit in the greater Grand Rapids area is being actively studied.

Barriers to movement, including missing or deficient links and existing and future physical transportation system gaps include the identified freight bottlenecks.

3.4.4 Corridor Objectives

This corridor serves close to 40 percent of Michigan's jobs and population. It serves the emerging technology workforce. Objectives for the corridor are to:

- Provide for safe and efficient travel by reducing congestion and delay, and improving intersections and interchanges;
- Improve roadway and bridge conditions including pavement condition;
- Expand passenger air and rail opportunities and intermodal connectivity;
- Provide more public transit opportunities within and between the urban areas;
- Preserve existing transit and intercity bus services;
- Support expansion of public transit opportunities to include countywide service all counties;
- Consider within urbanized areas how this corridor operates from a network perspective; and
- Advance regional rapid transit and downtown transit services.

3.4.5 Broad Policy-Based Corridor Strategies

The following strategies may help to advance these corridor-specific objectives. Detailed examples of capital projects, programs, and policies that may be used to implement the strategies identified below are provided in **Appendix D** to the *Corridors and International Borders Report.* MDOT will:

- Highway;
  - Capacity - Consistent with commitments within the regional MPO long-range plans, MDOT will modernize the I-196 Corridor and the East Beltline (M-37/M-44) interchange vicinity, improve the I-96/M-104/112 Avenue interchange area, and improve the I-96/Wixom interchange. Other improvements include providing improved access from I-96 to M-45 by providing a new crossing of the Grand River;
  - Modernization – bring bridges and roadway geometrics to current design standards;
  - Maintenance and Rehabilitation – implement scheduled and preventive maintenance programs;

- ITS – include or expand ITS within urban areas along the corridor;
- Continued participation in the metro Detroit Regional Concept for Transportation Operations (RCTO). A RCTO is the collaboration and coordination between transportation system managers responsible for operating the transportation system on a day-to-day basis;
- Transportation Demand Management (TDM) and Transportation Systems Management and Operations (TSMO) improvements – work with local governments to implement TDM and TSMO strategies;
- Access Management and Land Use – work with local governments to encourage land use patterns that may reduce the need for additional intersections and interchanges and will support transit oriented development patterns;
- Seek opportunities and implement low-cost operational improvements to increase roadway corridor mobility. These include but are not limited to geometric improvement, interchange improvements, ramp extensions, turning lanes, signal timing, visitor-friendly signage, improved incident management, and maintenance of traffic practices during construction projects;
- Continue to strive to maintain good pavement conditions, and modernize as warranted, along all of its trunkline corridors;
- Add or enhance long-distance bicycle trails;
- Improve overall corridor condition and operation for all modes;
- Integrate multi-modal transportation systems throughout this corridor including but not limited to incorporating carpool lot facilities, and bicycle and pedestrian facilities into future projects where feasible;
- Coordinate improvements and management practices with key local stakeholder groups along corridors;
- Develop strategies that can be implemented at the local level to innovate public transportation services to meet the unique needs/demands of the aging population;
- Support communication and coordination between local transit systems and between transit and intercity bus to improve connectivity and regional public transportation;
- Support coordination of transportation services and funding between local human service agencies and local transit agencies;
- Continue to provide financial and technical assistance to local agencies to help them preserve existing transit services;
- Encourage local transit agencies to evaluate the potential to expand to countywide service to increase service availability, increase opportunities to transfer to transit

systems in neighboring counties, and to increase opportunities to transfer to intercity bus and passenger rail;

- Continue to support MichiVan and local vanpool programs to provide commuter alternatives and reduce congestion;
- Monitor unsubsidized intercity bus service and plan for continued losses in Greyhound's services;
- Enhance cooperation, connectivity and coordination between intercity bus and passenger rail;
- Assist in local/regional efforts to advance plans for new regional, rapid transit and new downtown transit services; and
- Provide feeder bus services in accordance with the Midwest Regional Rail Initiatives as passenger rail services are improved and funding becomes available.

E Detroit/Chicago

3.5 E Detroit/Chicago

The Detroit/Chicago National/International Corridor of Highest Significance begins at I-75 in Detroit and follows I-94 west through Ann Arbor continuing to Chicago. It includes Wayne, Washtenaw, Jackson, Calhoun, Kalamazoo, Van Buren, and Berrien Counties.

3.5.1 Profile and Map

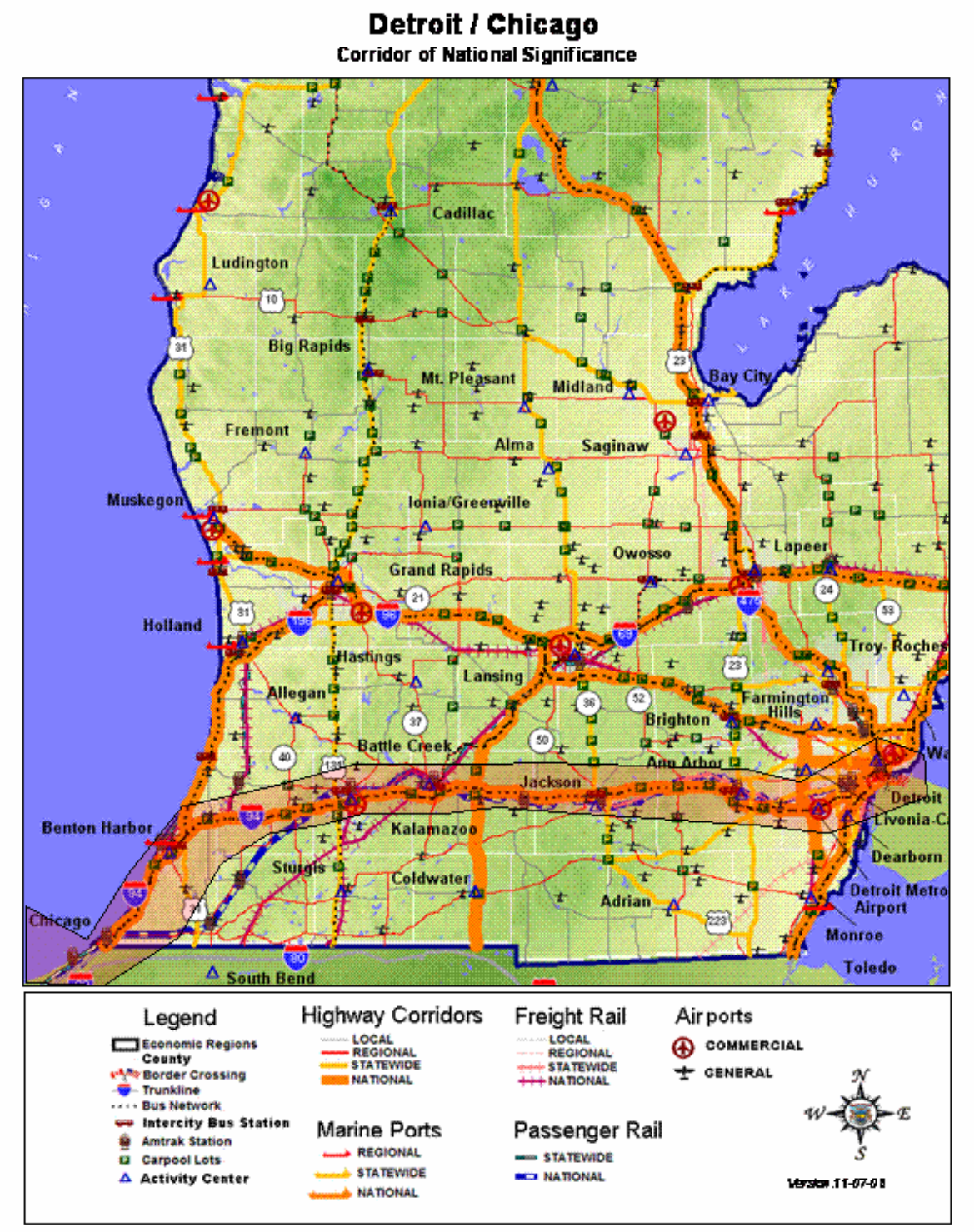
Travel within, between, and through an international border crossing, eight *MI Transportation Plan* activity centers within Michigan (Detroit, Detroit Metropolitan Airport, Dearborn, Taylor, Redford Township, Ann Arbor, Jackson, Battle Creek, Kalamazoo, Benton Harbor), and the Chicago metropolitan area is supported by this 215.9-mile corridor.

This corridor travels east-west through the heavily populated part of southern Michigan. The corridor area includes the greatest diversity and concentration of trade and technology jobs in the state. In addition to supporting Michigan-based business and commercial travel, it supports the international transport of commodities (border crossing data and issues are discussed in **Chapter 7** of the *Corridors and International Borders Report.*) The corridor connects Michigan residents, business and commerce to Chicago, the third largest city and metropolitan area in the US.

More than 35 universities and technology centers and major medical and life science research facilities are located within the corridor and the activity centers connected by this corridor. The corridor also provides some of Michigan's most important non-highway travel facilities including the Detroit Metropolitan Airport (Michigan's largest commercial passenger and air cargo airport), the Willow Run airport (a fast growing General Aviation air cargo airport),

Michigan's principal Amtrak service route and major marine ports in Detroit and Benton Harbor.

Figure 8: Detroit/Chicago Corridor



3.5.2 Estimate of Corridor Value

The value of this corridor to the state of Michigan is defined based on the people, businesses, industries, and activities it supports together with how it is integrated and connected to the greater Michigan transportation system and activity centers inside and outside the state. In terms of comparative ranking of the 19 *MI Transportation Plan* corridors, based on the amount of population and jobs it supports, this corridor ranks as the second highest compared to the other *MI Transportation Plan* Corridors of Highest Significance.

The Detroit to Chicago Corridor supports:

- Approximately 28 percent (over 3.2 million) of the state's population and 30 percent (over 1.7 million) Michigan jobs; the second highest of the 19 *MI Transportation Plan* Corridors of Highest Significance;
- The corridor accounts for 24.4 percent of the total statewide ton miles and 32.4 percent of the total statewide value miles of truck freight;
- The corridor accounts for 16.6 percent of total statewide rail-ton miles and 21.6 percent of rail-value miles;
- Seven of Michigan's 50 *MI Transportation Plan* activity centers;
- Five of Michigan's 17 *MI Transportation Plan* economic regions;
- A total average daily traffic (ADT) (corridor average) of 54,300 vehicles; is projected to have 35 percent of ADT growth by 2030;
- Linkages to two of the six *MI Transportation Plan* activity centers outside Michigan (Chicago and Toronto);
- The primary east-west Interstate link with the midwest's major industrial and commercial centers in Michigan, Indiana, Illinois, and Wisconsin;
- Access to international trade with Canada and connections in Detroit to the nation's busiest Can-Am International Border Crossings (Ambassador Bridge, Detroit-Windsor Tunnel, and trade volumes valued at over $375 billion);
- Two-thirds (11 of 17), of Michigan's Smart Zones (university research and technology centers);
- Thirty-five major health care facilities;
- Over 222,000 students enrolled in the state in post secondary schools are in educational institutions along this corridor;
- Over $4.8 million in lodging Use Tax Revenue and serves 44.4 million person days/year of tourism(the highest in the state);
- Connectivity for over 18 million air passengers (18 million annual enplanements at Detroit Metropolitan Airport), and over 223, 000 rail transit riders on Amtrak;

- Connectivity to two of the fastest growing general aviation cargo airports at Willow Run and Benton Harbor (serving Whirlpool) and a joint use military/civilian cargo airport in Battle Creek;
- Marine cargo ports at Detroit and St. Joseph that handle almost 15 million tons; and
- Five state parks, 33 prisons (more than any other *MI Transportation Plan* corridor), and 13,000 people employed in gaming centers.

Table 18: Population/Employment/ADT within a 20-mile geographic area around Corridor Detroit/Chicago

(215.9 miles)	*2005*	*2030*
Population within band	3,183,530	3,292,080
Employment within band	1,704,410	1,819,270
Total daily vehicle-miles of travel	11,733,490	15,848,610
Total average daily traffic (corridor average)	54,350	73,410
Highest total ADT	143,600	184,140
Lowest total ADT	26,150	33,364
Passenger average daily traffic (corridor average)	44,030	59,680
Highest passenger ADT	132,360	169,470
Lowest passenger ADT	17,670	22,550
Commercial average daily traffic (corridor average)	10,322	13,730
Highest commercial ADT	14,300	18,960
Lowest commercial ADT	8,070	9,490

Table 19: Corridor Truck Freight Totals

Detroit/Chicago				
Miles (213.65)	*2003 Tons*	*2013 Tons*	*2003 Value*	*2013 Value*
Average	60,206,370	68,243,200	$204,217,707,116	$256,064,593,336
High	95,956,690	109,931,300	$296,846,627,120	$378,327,695,424
Low	37,138,410	41,493,740	$132,687,622,412	$163,064,936,192

Table 20: Corridor Rail Freight Totals

Detroit/Chicago (multiple lines)				
Track Miles (277.65)	*2003 Tons*	*2013 Tons*	*2003 Value*	*2013 Value*
Average	9,088,770	9,892,880	$15,930,391,519	$16,331,818,977
High	27,527,980	30,203,260	$43,040,991,576	$43,570,645,893
Low	66,680	82,320	$15,102,323	$18,960,080

Source: Michigan Department of Transportation Statewide and Urban Travel Analysis Section

Table 21: Detroit/Chicago – Activity Centers Summary

Activity	*Measure*	*Year*	*Detroit*	*Dearborn-Taylor*	*Detroit Metro Airport*	*Ann Arbor*	*Jackson*	*Battle Creek*	*Kalamazoo*	*Benton Harbor*	*Total Value*
URBAN											
Population	Total Activity Center Population	2005	987,133	574,133	23,758	347,821	164,922	139,434	323,558	162,976	2,723,735
COMMERCIAL											
General Economic Activity	Total Employment	2005	364,229	320,012	41,754	244,105	80,102	77,093	188,832	90,505	1,406,632
Retail Activity	Retail Employment	2005	42,642	61,141	3,960	39,589	15,878	15,074	34,862	16,521	229,667
TOURISM											
Hotel Capacity	Hotel Units	2000	2,463	3,200	2,902	3,362	680	1,324	2,389	1,983	18,303
Annual Lodging Use Tax revenue	Revenue	2004	2,242,809	1,266,878	107,475	451,700	158,407	148,150	255,068	135,615	4,766,102
National Park	Number of National Park	2005									
State Park	Number of State Park Location	2005				1	1		2	1	5
Gaming	Gaming Centers Employment	2005	13,100								13,100
Number of Visitors	Person Trips	2004	3,640,968	6,445,937	832,167	2,218,342	1,830,425	2,092,459	3,505,960	1,422,594	21,988,852
Length of Stay	Person Days	2004	8,062,390	14,273,564	1,842,709	3,977,178	3,629,479	3,481,508	6,162,598	3,003,448	44,432,874
EDUCATION/TECHNOLOGY CENTER											
Educational Centers	Student Population	2005	56,660	23,075		77,020	10,951	7,514	39,697	7,172	222,089
Smart Zones	Number of Technology Centers	2006	1	1		1		1	1		5
LIFE SCIENCE											
Hospitals	Number of Facilities	2005	11	5		8	3	2	3	3	35
CORRECTIONAL FACILITIES											
Prisons	Number of Facilities	2005	10	1	1	6	11	1	2	1	33
MILITARY BASE											
Military Base Center	Number of Facilities	2005									
PASSENGER FACILITIES											
Air Passenger	Passenger Enplanments	2005	124,288		17,668,661				236,744	2,817	18,032,510
Amtrak	Number of Passengers	2005	27,194	34,549		64,344	12,346	25,069	46,877	12,902	223,281
Car Pool	Number of Facilities	2005	963			6	4	4	7	3	987
Intercity Bus Station	Passenger Stations	2005	1			1	1	1	2	1	7
FREIGHT FACILITIES											
Air Cargo Ports	Cargo Tonnage	2005	420	135,869	135,869				77	1	272,234
Marine Ports	Cargo Tonnage	2003	14,017,000							803,711	14,820,711
INTERNATIONAL BORDER CROSSING											
Passenger and Freight	Number of Border Crossings	2005	4								4

3.5.3 Corridor Analysis

This corridor crosses southern Michigan and connects the international border crossings in Detroit to the Chicago area. It is a principal corridor for east-west freight movements both within Michigan and through Michigan between Chicago and the International Border Crossings. Travel is available on all modes in the corridor. The western part of the corridor supports a significant portion of Michigan's agricultural and fruit industry.

Primary roadway concerns are heavy congestion inside the urban areas, maintenance of traffic during construction, operational strategies to address non-recurring congestion, and the need for modernization such as bridge clearances and geometrics and proper roadside facilities to handle the heavy volume of truck traffic.

It should also be noted that the FHWA, October 2005, *National Assessment of Freight Bottlenecks on Highways* (http://fhwainter.fhwa.dot.gov/policy/otp/bottlenecks) ranked the I-94 at I-75 interchange in Detroit, on this corridor, as the worst in Michigan and among the worst (among the top 75) in the nation for annual hours of delay for all trucks. **Figure 6** in **Section 3.3.3** presents FHWA maps showing existing and projected peak congested locations.

This is the most prolific corridor for intercity passenger modes, with three intercity bus carriers and passenger rail serving all or portions of the corridor. Major points of connection between east-west intercity bus and north-south intercity bus routes are at Kalamazoo and between intercity bus and passenger rail are at Battle Creek. There is a diverse range of public transit services within this corridor with several urban systems and some small community and countywide demand response systems. There is also a high level of MichiVan vanpool use especially in the Detroit to Ann Arbor portion of the corridor.

Commercial service airports in Detroit and Kalamazoo provide passengers with convenient access to larger hub airports with numerous national and international connections. Airports in Detroit and Willow Run in Ypsilanti are also significant handlers of air cargo, and express and package freight.

Opportunities for this corridor include the availability of industrial parcels, the large amounts of freight commodities, which move along the corridor, and the potential for economic growth in manufacturing. The corridor will continue to become desirable and attractive as a place to locate or expand new and existing businesses with improvements and modernization.

Barriers to movement, including missing or deficient links and existing and future physical transportation system gaps include the identified freight bottleneck, the need for modernization, operational improvements, mobility, improved incident management practices, and better maintenance of traffic during reconstruction projects throughout the corridor.

3.5.4 Corridor Objectives

Because of the length of the Detroit/Chicago Corridor, no single set of corridor objectives reflects the conditions, needs, or public preferences expressed during public involvement

sessions or the technical transportation needs identified over its entire length. Public participation and survey research conducted for *MI Transportation Plan* clearly shows significant differences in public opinion, values, and transportation preference between the Metropolitan Detroit area, the Ann Arbor Area, and the Dearborn and Benton Harbor areas. Performance analysis also demonstrates different types of barriers and deficiencies in each of the activity center locations along the length of the corridor. Therefore, three sets of objectives and three policy-based strategies are recommended for the corridor:

- Corridor Wide Objectives:
  - Maintain an acceptable level of pavement in good condition based on funding levels to allow for adequate funds to be directed to achieving the preferred vision;
  - Manage and improve existing facilities before expanding or adding capacity;
  - Advance regional rapid transit and downtown transit services;
  - Focus on highways improvements such as interchange improvements, safety, maintenance of traffic during construction to improve traffic mobility;
  - Identify creative funding options including public private partnerships such as asking local governments or private partners to purchase and donate the right-of-way needed for improvements;
  - Modernize roadside facilities to meet the growing commercial needs of this corridor;
  - Evaluate the potential to generate funding through user fees; and
  - Consider within urbanized areas how this corridor operates from a network perspective.
- Urban Area Objectives:
  - Improve modal options to and from the airports;
  - Embrace technological advances to improve multi-modal transportation;
  - Add highway capacity and improve operations;
  - Expand ITS along the corridor to more efficiently manage the operations of the corridor; and
  - Improve public transportation and pedestrian and bicycle options.
- Rural and Suburban Area Objectives:
  - Improve modal options for personal long-distance travel, including the expansion and addition of carpool lots; and
  - Coordinate with local governments to create sustainable land uses.

3.5.5 Broad Policy-Based Corridor Strategies

The following strategies may help to advance these corridor-specific objectives. Detailed examples of capital projects, programs, and policies that may be used to implement the strategies identified below are provided in **Appendix D** to the *Corridors and International Borders Report.* MDOT will:

- Apply Asset Management principles;
- Apply Highway strategies;
  - Capacity – Widen I-94 in Kalamazoo and widen I-94 from I-96 to Connor Avenue in Detroit;
  - Modernization – bring bridges, interchanges, and roadway geometrics to current design standards;
  - Maintenance and Rehabilitation – implement scheduled and preventive maintenance programs;
- Install and implement ITS advances in key corridors to improve the overall operations of the region's transportation systems;
- Consider congestion pricing in the Detroit portion of the highway corridor;
- Implement an acceptable delay policy during reconstruction by identifying a number of maintenance of traffic approaches (e.g. performing night work or maintaining two lanes of traffic during construction – this may require bridge widening);
- Work with local governments to implement Transportation Demand Management (TDM) and Transportation Systems Management and Operations (TSMO) strategies;
- Continued participation in the metro Detroit Regional Concept for Transportation Operations (RCTO). A RCTO is the collaboration and coordination between transportation system managers responsible for operating the transportation system on a day-to-day basis;
- Work with local governments to encourage Access Management and land use patterns that may reduce the need for additional intersections and interchanges and will support transit oriented development patterns;
- Apply operational improvement strategies such as increased incident management and maintenance of traffic practices during construction;
- Seek opportunities and implement low-cost operational improvements to increase roadway corridor mobility. These include but are not limited to interchange improvements such as geometric improvements, ramp extensions, turning lanes, and signal timing, visitor-friendly signage, improved incident management, and maintenance of traffic practices during construction projects;

- Continue to strive to maintain good pavement conditions, and modernize as warranted, along all of all trunkline corridors;
- Add or enhance long-distance bicycle trails;
- Improve overall corridor condition and operation for all modes;
- Incorporate where feasible local road widening opportunities (funded by local transportation agencies) when MDOT is reconstructing its corridor bridge.
- Integrate multi-modal transportation systems throughout this corridor including but not limited to incorporating carpool lot facilities, and bicycle and pedestrian facilities into future projects where feasible;
- Coordinate improvements and management practices with key local stakeholder groups along corridors;
- Support completion and implementation of regional transit study for the Ann Arbor to Detroit portion of the corridor;
- Develop strategies that can be implemented at the local level to innovate public transportation services to meet the unique needs/demands of the aging population;
- Support communication and coordination between local transit systems and between transit and intercity bus to improve connectivity and regional public transportation;
- Support coordination of transportation services and funding between local human service agencies and local transit agencies;
- Continue to provide financial and technical assistance to local agencies to help them preserve existing transit services;
- Encourage local transit agencies to evaluate the potential to expand to countywide service improve service levels and connectivity;
- Continue to support the MichiVan program to provide commuter alternative and decrease congestion;
- Enhance cooperation, connectivity and coordination between intercity bus and passenger rail;
- Assist in local/regional efforts to advance plans for new regional, rapid transit and new downtown transit services;
- Encourage intercity passenger carriers to evaluate and implement improvements in the areas of service coordination and use technology to provide better information for users and potential users;
- Identify ways passenger rail service, alone or in coordination with intercity bus and/or local transit, can be used to assist workforce commuters and business trips in regional efforts;

- Work with intercity carriers and Travel Michigan to promote Michigan as a travel destination;
- Encourage opportunities for infrastructure improvements between rail freight and rail passenger that reduce congestion and provide for improved on time performance;
- Promote intercity high-speed rail as a key component of a balanced transportation system by expanding the coverage of the Incremental Train Control System (ITCS) in the corridor; and
- Support implementation of recommendations in Midwest Regional Rail Initiatives as funding becomes available.

F Grand Rapids/Chicago

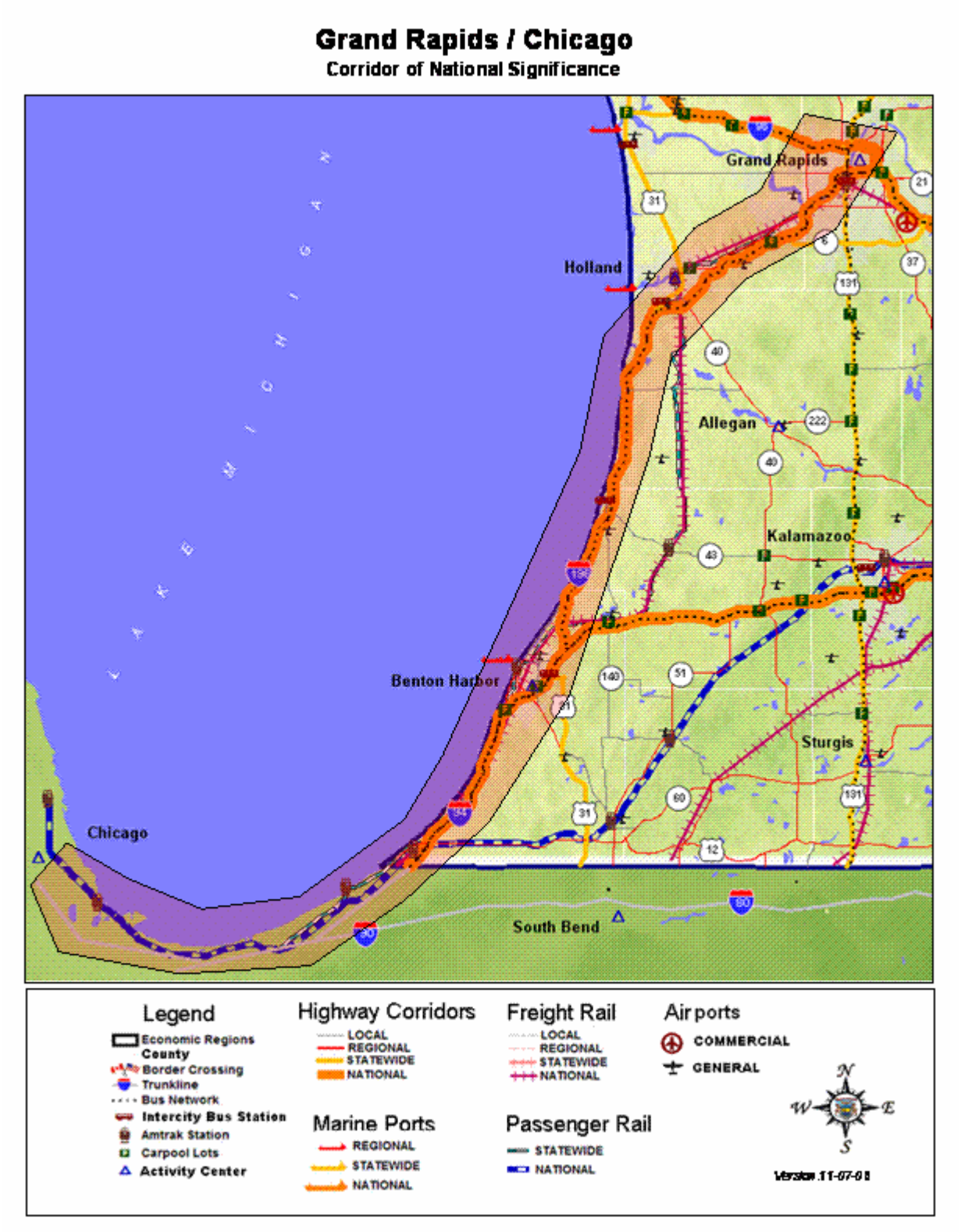
3.6 F Grand Rapids/Chicago

The Grand Rapids/Chicago National/International Corridor of Highest Significance begins at I-96 in Grand Rapids and follows I-196 south and west through Holland to I-94 then follows I-94 west to Chicago. It includes Kent, Ottawa, Allegan, Van Buren, and Berrien Counties.

3.6.1 Profile and Map

The 114.8-mile Grand Rapids/Chicago Corridor provides a connection for the people and businesses of Grand Rapids and western southern Michigan to Chicago. It also functions as a leg to the two National/International *MI Transportation Plan* Corridors of Highest Significance (E and J) in southern Michigan that connects the people and industry of Michigan to the midwest's jobs and industry. The corridor links five *MI Transportation Plan* activity centers and includes CSX freight rail and Amtrak service.

Figure 9: Grand Rapids/Chicago Corridor



3.6.2 *Estimate of Corridor Value*

The value of this corridor to the state of Michigan is defined based on the people, businesses, industries, and activities it supports together with how it is integrated and connected to the greater Michigan transportation system and *MI Transportation Plan* activity centers inside and outside the state. In terms of this corridor, one of its most important values is in how it connects with other *MI Transportation Plan* Corridors of Highest Significance.

The Grand Rapids/Detroit Corridor supports:

- Approximately eight percent of Michigan's population and 10 percent of Michigan jobs;
  - The corridor accounts for 10.3 percent of the total statewide ton miles and 11.2 percent of the total statewide value miles of truck freight;
  - The corridor accounts for 8.6 percent of total statewide rail-ton miles and 7.7 percent of rail-value miles;
  - Five of Michigan's 50 *MI Transportation Plan* activity centers;
  - Two of Michigan's *MI Transportation Plan* economic regions;
  - A total average daily traffic (ADT) (corridor average) of 32,000 vehicles; is projected to have the highest percent of ADT growth (52%) as compared to all *MI Transportation Plan* National Corridors of Highest Significance;
  - Connections to two *MI Transportation Plan* National/International Corridors of Highest Significance and three Statewide Corridors of Highest Significance;
  - Key linkages nationally to Chicago and the midwest;
  - Over 20.3 million person days of tourism activity;
  - Three commercial airports with 1.3 million enplanements annually;
  - An expanding General Aviation airport in Benton Harbor serving Whirlpool;
  - Two marine cargo ports handling more than 1.3 million tons;
  - Amtrak service in the area serving over 100,000 passengers/year; and
  - Six state parks, 15 hospitals, and seven prisons.

Table 22: Population/Employment/ADT within a 20-mile geographic area around Corridor Grand Rapids/Chicago

(114.8 miles)	*2005*	*2030*
Population within band	895,090	1,104,800
Employment within band	625,640	756,380
Total daily vehicle-miles of travel	3,712,900	5,626,650
Total average daily traffic (corridor average)	32,350	49,020
Highest total ADT	73,900	120,300
Lowest total ADT	13,090	21,490
Passenger average daily traffic (corridor average)	25,510	38,890
Highest passenger ADT	69,470	113,690
Lowest passenger ADT	9,550	15,670
Commercial average daily traffic (corridor average)	6,840	10,130
Highest commercial ADT	14,300	18,470
Lowest commercial ADT	3,540	5,400

Table 23: Corridor Truck Freight Totals

Grand Rapids/Chicago

Miles (110.92)	*2003 Tons*	*2013 Tons*	*2003 Value*	*2013 Value*
Average	48,958,150	55,203,540	$135,599,230,541	$174,036,718,902
High	95,956,690	109,931,300	$296,846,627,120	$378,327,695,424
Low	13,782,090	15,792,600	$30,019,860,545	$40,907,392,630

Table 24: Corridor Rail Freight Totals

Grand Rapids/Chicago

Track Miles (113.184)	*2003 Tons*	*2013 Tons*	*2003 Value*	*2013 Value*
Average	11,514,200	13,326,200	$13,995,799,210	$15,598,985,378
High	12,016,680	13,869,740	$14,108,760,736	$15,764,122,360
Low	10,117,800	11,644,570	$13,940,255,584	$15,530,602,724

Source: Michigan Department of Transportation Statewide and Urban Travel Analysis Section

Table 25: Grand Rapids/Chicago – Activity Centers Summary

Activity	*Measure*	*Year*	*Grand Rapids*	*Holland*	*Allegan*	*Kalamazoo*	*Benton Harbor*	*Total Value*
URBAN								
Population	Total Activity Center Population	2005	663,754	138,199	95,348	323,558	162,976	1,383,835
COMMERCIAL								
General Economic Activity	Total Employment	2005	461,056	103,954	40,047	188,832	90,505	884,394
Retail Activity	Retail Employment	2005	79,198	17,860	7,829	34,862	16,521	156,270
TOURISM								
Hotel Capacity	Hotel Units	2000	6,118	823	531	2,389	1,983	11,844
Annual Lodging Use Tax revenue	Revenue	2004	1,766,118	216,939	51,128	255,068	135,615	2,424,868
National Park	Number of National Park	2005						
State Park	Number of State Park Location	2005		2	1	2	1	6
Gaming	Gaming Centers Employment	2005						-
Number of Visitors	Person Trips	2004	4,382,203	696,037	479,655	3,505,960	1,422,594	10,486,449
Length of Stay	Person Days	2004	8,392,678	1,668,627	1,081,412	6,162,598	3,003,448	20,308,763
EDUCATION/TECHNOLOGY CENTER								
Educational Centers	Student Population	2005	60,785	3,328		39,697	7,172	110,982
Smart Zones	Number of Technology Centers	2006	1			1		2
LIFE SCIENCE								
Hospitals	Number of Facilities	2005	6	2	1	3	3	15
CORRECTIONAL FACILITIES								
Prisons	Number of Facilities	2005	2	2		2	1	7
MILITARY BASE								
Military Base Center	Number of Facilities	2005						
PASSENGER FACILITIES								
Air Passenger	Passenger Enplanments	2005	1,047,223			236,744	2,817	1,286,784
Amtrak	Number of Passengers	2005	25,376	17,272		46,877	12,902	102,427
Car Pool	Number of Facilities	2005	10	1	3	7	3	24
Intercity Bus Station	Passenger Stations	2005	1	1		2	1	5
FREIGHT FACILITIES								
Air Cargo Ports	Cargo Tonnage	2005	22,263			77	1	22,340
Marine Ports	Cargo Tonnage	2003		559,000			803,711	1,362,711
INTERNATIONAL BORDER CROSSING								
Passenger and Freight	Number of Border Crossings	2005						

3.6.3 Corridor Analysis

This corridor links the Muskegon/Grand Rapids/Lansing/Detroit Corridor with the Detroit/ Chicago Corridor it is located in southwestern Michigan. Travel is available on all modes in the corridor. Excellent commercial service in Grand Rapids provides passengers with convenient access to larger hub airports with numerous national and international connections. Amtrak's convenient Pere Marquette service provides a mobility option to passengers in all the major community centers of the corridor. The corridor supports a significant portion of Michigan's agricultural (fruit) and manufacturing industries, (furniture, transportation equipment, fabricated metal products, and food.) This corridor is also influenced heavily by tourism travel from Chicago to tourism destinations on Lake Michigan and many other areas of western Michigan.

The recently completed Paul B. Henry Freeway (M-6) that connects I-196 to US-131 and I-96 in the Grand Rapids area provides improved mobility to the corridor. Primary roadway concerns are the need for modernization such as bridge clearances and geometrics to handle the heavy volume of truck traffic.

This entire corridor is served by both passenger rail and intercity bus service with several passenger terminals. There is also a high level of public transit provided by three urban systems, three countywide systems, and one community system. Vanpooling is also growing as a commute alternative within the corridor, which has a positive impact on congestion.

Opportunities for this corridor include the availability of industrial land and the potential for economic growth in automotive and related manufacturing. The corridor will continue to become desirable and attractive as a place to locate new or expanding businesses with improvements and modernization.

Barriers to movement, including missing or deficient links and existing and future physical transportation system gaps include the need for modernization and the quality of the pavement and bridge condition throughout the corridor.

3.6.4 Corridor Objectives

This corridor serves a mix of year-round residents, seasonal tourists, and freight traffic. Objectives for the corridor are to:

- Provide for safe and efficient travel by reducing congestion and delay, and improving intersections and interchanges;
- Improve roadway and bridge conditions including pavement condition;
- Expand passenger air and rail opportunities and intermodal connectivity;
- Provide more public transit opportunities within and between the urban areas;
- Preserve existing transit and intercity bus services; and

- Support expansion of public transit opportunities to include countywide service for all counties.

3.6.5 Broad Policy-Based Corridor Strategies

The following strategies may help to advance these corridor-specific objectives. Detailed examples of capital projects, programs, and policies that may be used to implement the strategies identified below are provided in **Appendix D** to the *Corridors and International Borders Report.* MDOT will:

- Apply Asset Management principles;
- Highway;
  - Capacity - Modernize the I-196 corridor in Grand Rapids to bring bridges and roadway geometrics to current design standards, improve the I-96/I-196 junction area in Grand Rapids, improve freeway mainline and intersection and interchanges in the Grand Rapids area;
  - Maintenance and Rehabilitation – implement scheduled and preventive maintenance programs;
- Modernize roadside facilities to meet the growing commercial needs of this corridor;
- Install and implement ITS advances in key corridors to improve the overall operations of the region's transportation systems;
- Implement an acceptable delay policy during reconstruction by identifying a number of maintenance of traffic approaches (e.g. performing night work or maintaining two lanes of traffic during construction – this may require bridge widening.);
- Work with local governments to implement Transportation Demand Management (TDM) and Transportation Systems Management and Operations (TSMO) improvements and strategies;
- Work with local governments to apply Access Management and encourage land use Policies and patterns that may reduce the need for additional intersections and interchanges and will support transit oriented development patterns;
- Apply operational improvement strategies such as increased incident management and maintenance of traffic practices during construction;
- Seek opportunities and implement low-cost operational improvements to increase roadway corridor mobility. These include but are not limited to geometric improvement, interchange improvements, ramp extensions, turning lanes, signal timing, visitor-friendly signage, improved incident management, and maintenance of traffic practices during construction projects;
- Continue to strive to maintain good pavement conditions, and modernize as warranted, along all of its trunkline corridors;

- Add or enhance long-distance bicycle trails;
- Improve overall corridor condition and operation for all modes;
- Integrate multi-modal transportation systems throughout this corridor including but not limited to incorporating carpool lot facilities, and bicycle and pedestrian facilities into future projects where feasible;
- Coordinate improvements and management practices with key local stakeholder groups along corridors;
- Continue to provide financial and technical assistance to local agencies to help them preserve existing transit services;
- Support completion and implementation of regional transit study for the Ann Arbor to Detroit portion of the corridor;
- Develop strategies that can be implemented at the local level to innovate public transportation services to meet the unique needs/demands of the aging population;
- Support communication and coordination between local transit systems and between transit and intercity bus to improve connectivity and regional public transportation;
- Support coordination of transportation services and funding between local human service agencies and local transit agencies;
- Continue to support vanpool programs to provide commuter alternatives and congestion relief;
- Monitor unsubsidized intercity bus service and plan for continued losses in Greyhound's services;
- Enhance cooperation, connectivity and coordination between intercity bus and passenger rail;
- Assist in local/regional efforts to advance plans for new regional, rapid transit and new downtown transit services;
- Encourage intercity passenger carriers to evaluate and implement improvements in the areas of service coordination and use of technology to provide better information for users and potential users;
- Continue to provide financial assistance to help preserve existing state subsidized passenger rail service;
- Identify ways passenger rail service, alone or in coordination with intercity bus and/or local transit, can be used to assist workforce commuters and business trips in regional efforts;
- Work with intercity carriers and Travel Michigan to promote Michigan as a travel destination;

- Encourage opportunities for infrastructure improvements between rail freight and rail passenger that reduce congestion and provide for improved on time performance; and
- Support implementation of recommendations in Midwest Regional Rail Initiatives as funding becomes available.

G Port Huron/Detroit/Toledo

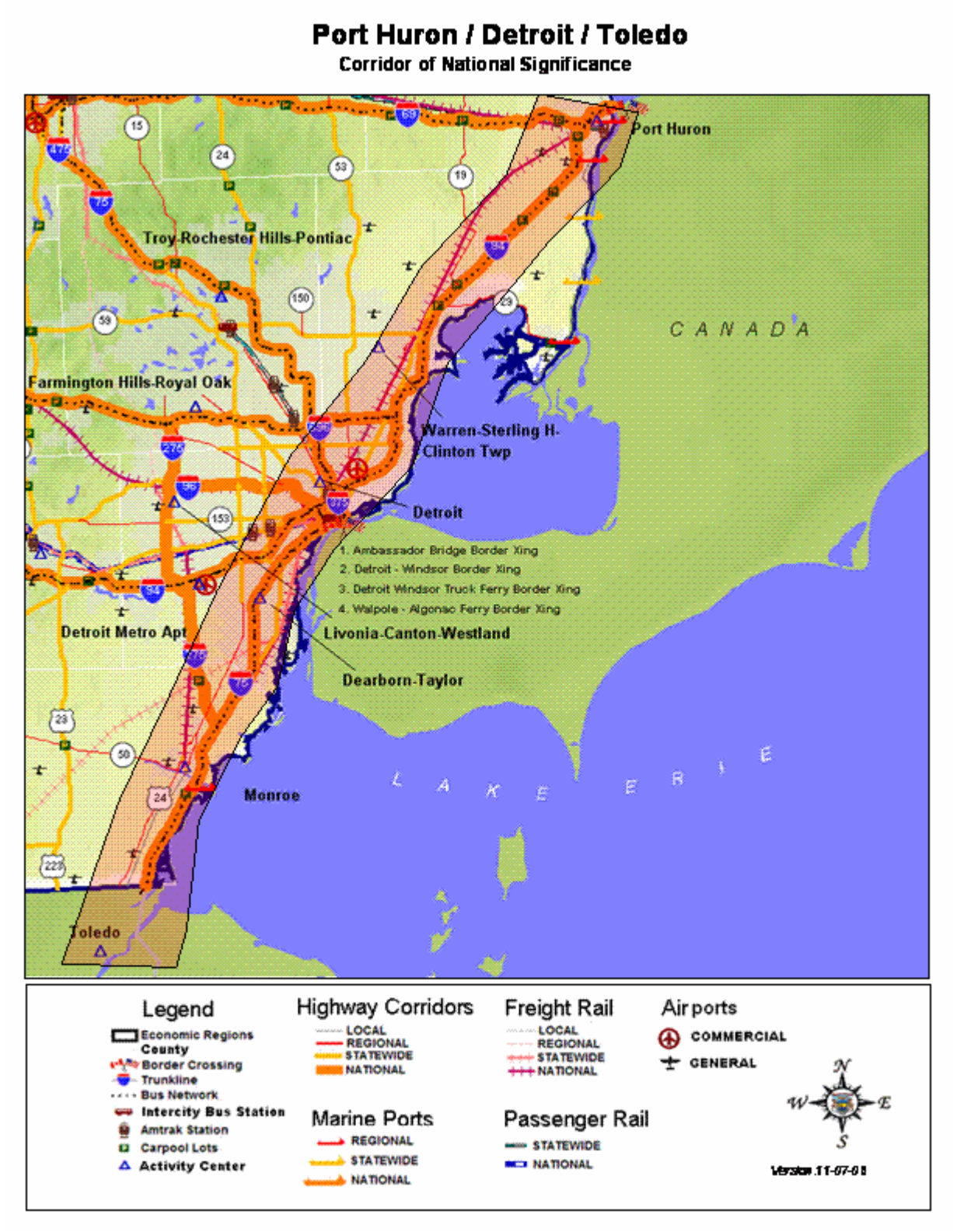
3.7 G Port Huron/Detroit/Toledo

The Port Huron/Detroit/Toledo National/International Corridor of Highest Significance begins at the International Border Crossing at the Canadian border in Port Huron, follows I-94 west and south to I-75 in Detroit then follows I-75 south to and through Toledo and the southern US. It includes St. Clair, Macomb, Wayne, and Monroe Counties.

3.7.1 Profile and Map

This 112.6-mile corridor connects Michigan to the International Border at Port Huron to Toledo and other midwestern cities and states. It carries considerable freight traffic from Canada in addition to pass through freight and passenger travel between Canada and the US. The corridor serves the Detroit metropolitan area and connects directly with the following corridors: C Bay City–Midland–Saginaw/Flint/Detroit; D Muskegon/Grand Rapids/Lansing/Detroit; E Detroit/Chicago; H Port Huron/Lansing/Indianapolis; J Port Huron/Chicago; K I-696; L I-275; R Flint/Toledo; and U Jackson/Toledo. This multitude of corridors converging in the Detroit area makes it clear that within this area, these corridors operate more as a network than as individual corridors.

Figure 10: Port Huron/Detroit/Toledo Corridor



3.7.2 Estimate of Corridor Value

The value of this corridor to the state of Michigan is defined based on the people, businesses, industries, and activities it supports together with how it is integrated and connected to the greater Michigan transportation system and *MI Transportation Plan* activity centers inside and outside the state. In comparison to the other 18 *MI Transportation Plan* corridors, this corridor supports the fourth-highest percentage of Michigan's population and jobs.

The Port Huron/Detroit/Toledo Corridor supports:

- Approximately 24 percent of Michigan's population and 23 percent of Michigan jobs;
- The corridor accounts for 10 percent of the total statewide ton miles and 11.9 percent of the total statewide value miles of truck freight;
- The corridor accounts for 16.4 percent of total statewide rail-ton miles and 18.9 percent of rail-value miles;
- Five of Michigan's 50 *MI Transportation Plan* activity centers;
- Three of Michigan's *MI Transportation Plan* economic regions;
- A total average daily traffic (ADT) (corridor average) of over 76,000 vehicles; this corridor also has the highest commercial ADT (16,600) of any corridor and the fourth highest ADT of 162,000 vehicles;
- Is projected to have one of the lowest percent of ADT growth (25% by 2030) as compared to all other *MI Transportation Plan* national corridors;
- Connections to International Border Crossings at Port Huron and Detroit;
- Connections to four National/International Corridors of Highest Significance and several Statewide Corridors of Highest Significance;
- Key linkages nationally and internationally;
- Serves close to 30 million person days of tourism activity per year (the fourth highest in the state);
- Selfridge Air National Guard Military Airport in Mt. Clemons;
- Amtrak service (67,000 passengers);
- Includes major marine cargo ports handling over 24 million tons;
- Three state parks and 13,000 people employed in gaming centers; and
- Approximately 115,000 students, 25 major medical facilities.

Table 26: Population/Employment/ADT within a 20-mile geographic area around Corridor Port Huron/Detroit/Toledo

(112.6 miles)	*2005*	*2030*
Population within band	2,712,060	2,779,910
Employment within band	1,307,530	1,365,280
Total daily vehicle-miles of travel	8,579,070	10,705,440
Total average daily traffic (corridor average)	76,190	95,080
Highest total ADT	161,600	188,540
Lowest total ADT	15,100	19,520
Passenger average daily traffic (corridor average)	66,870	83,740
Highest passenger ADT	154,230	181,710
Lowest passenger ADT	10,290	13,300
Commercial average daily traffic (corridor average)	9,320	11,340
Highest commercial ADT	16,600	20,250
Lowest commercial ADT	3,390	4,650

Table 27: Corridor Truck Freight Totals

Port Huron/Detroit/Toledo				
Miles (203.81)	*2003 Tons*	*2013 Tons*	*2003 Value*	*2013 Value*
Average	32,840,040	34,954,660	$107,767,533,537	$124,769,934,306
High	83,635,590	89,275,620	$261,249,642,235	$300,450,237,440
Low	9,955,510	11,346,460	$28,031,364,352	$34,337,279,488

Table 28: Corridor Rail Freight Totals

Port Huron/Detroit/Toledo (multiple lines)				
Track Miles (220.62)	*2003 Tons*	*2013 Tons*	*2003 Value*	*2013 Value*
Average	11,311,550	13,200,980	$17,594,606,468	$19,697,459,218
High	30,444,270	36,508,270	$46,466,486,272	$52,314,883,731
Low	434,520	499,410	$783,547,260	$933,471,516

Source: Michigan Department of Transportation Statewide and Urban Travel Analysis Section

Table 29: Port Huron/Detroit/Toledo – Activity Centers Summary

Activity	*Measure*	*Year*	*Port Huron*	*Warren*	*Detroit*	*Dearborn-Taylor*	*Monroe*	*Total Value*
URBAN								
Population	Total Activity Center Population	2005	171,921	810,094	987,133	574,133	153,441	2,696,722
COMMERCIAL								
General Economic Activity	Total Employment	2005	66,291	394,321	364,229	320,012	58,512	1,203,365
Retail Activity	Retail Employment	2005	13,495	69,596	42,642	61,141	12,532	199,406
TOURISM								
Hotel Capacity	Hotel Units	2000	1,106	3,501	2,463	3,200	618	10,888
Annual Lodging Use Tax revenue	Revenue	2004	330,864	779,948	2,242,809	1,266,878	110,345	4,730,844
National Park	Number of National Park	2005						
State Park	Number of State Park Location	2005	2				1	3
Gaming	Gaming Centers Employment	2005			13,100			13,100
Number of Visitors	Person Trips	2004	1,340,362	1,224,652	3,640,968	6,445,937	1,151,573	13,803,492
Length of Stay	Person Days	2004	2,774,663	2,858,295	8,062,390	14,273,564	2,002,442	29,971,354
EDUCATION/TECHNOLOGY CENTER								
Educational Centers	Student Population	2005	5,698	25,336	56,660	23,075	4,177	114,946
Smart Zones	Number of Technology Centers	2006			1	1		2
LIFE SCIENCE								
Hospitals	Number of Facilities	2005	3	5	11	5	1	25
CORRECTIONAL FACILITIES								
Prisons	Number of Facilities	2005	1	3	10	1		15
MILITARY BASE								
Military Base Center	Number of Facilities	2005						
PASSENGER FACILITIES								
Air Passenger	Passenger Enplanments	2005			124,288			124,288
Amtrak	Number of Passengers	2005	5,193		27,194	34,549		66,936
Car Pool	Number of Facilities	2005	7	2	963		3	975
Intercity Bus Station	Passenger Stations	2005			1			1
FREIGHT FACILITIES								
Air Cargo Ports	Cargo Tonnage	2005			420	135,869		136,288
Marine Ports	Cargo Tonnage	2003	9,285,000		14,017,000		1,077,000	24,379,000
INTERNATIONAL BORDER CROSSING								
Passenger and Freight	Number of Border Crossings	2005	4		4			8

3.7.3 Corridor Analysis

This corridor supports approximately 24 percent of Michigan's jobs and travel for local residents, businesses and tourists, and an International Border Crossing at Port Huron. As described in **Section 3.7.1**, the corridor interconnects with most of the corridors of significance in the state and creates an overlapping network offering travel options for the Detroit Metropolitan Region. This corridor supports heavy freight movements both domestic and international between Canada, Detroit, Toledo and the greater midwest. The manufacturing and transportation equipment industries rely heavily upon this corridor. Coal is also moved along this corridor to support industry within the region. Problems and improvements on any one of the corridors in this interconnected network impact all the corridors within the Detroit metropolitan area. For this corridor, above all others, it is important to approach issues and needs from a broad network perspective that looks at interconnectivity throughout the region.

Barriers to movement, including missing or deficient links and existing and future physical transportation system gaps include freight bottlenecks. The FHWA, October 2005, *National Assessment of Freight Bottlenecks on Highways* ranked two interchanges on or connecting to this corridor as among the worst (among the top 120) in the nation for annual hours of delay for all trucks. (http://fhwainter.fhwa.dot.gov/policy/otp/bottlenecks) These include I-96 at I-275 and the Southfield (M-39) at M-5 in Detroit. **Figure 6** in **Section 3.3.3** presents FHWA maps showing existing and projected peak congested locations.

Several passenger terminals connect transit to intercity bus and/or passenger rail at several key points in the corridor. Countywide transit is available in all counties within the corridor. MichiVan service is used widely in the corridor and continues to grow in popularity as a commuter alternative. Privately-operated, unsubsidized intercity buses serve locations throughout the corridor. The locations served by Greyhound Lines are subject to a reduction in service consistent with their other nationwide service reductions.

3.7.4 Corridor Objectives

This corridor and its many interconnecting corridors provides an overlapping network for travel within the region, international travel for the border crossing in the region, for manufacturers and workforces for much of southeastern Michigan. Objectives for the corridor are to:

- Improve roadway and system conditions consistent with Asset Management strategies MDOT;
- Improve freeway to freeway interchanges;
- Improve connectivity with border crossings;
- Provide for safe and efficient travel by reducing congestion and delay, and improving intersections and interchanges;
- Modernize and improve roadway and bridge conditions including pavement condition;

- Consider within urbanized areas how this corridor operates from a network perspective;
- Expand passenger air and rail opportunities and intermodal connectivity;
- Preserve existing transit and intercity bus services; and
- Support expansion of public transit and downtown transit services.

3.7.5 Broad Policy-Based Corridor Strategies

The following strategies may help to advance these corridor-specific objectives. Detailed examples of capital projects, programs, and policies that may be used to implement the strategies identified below are provided in **Appendix D** to the *Corridors and International Borders Report.* MDOT will:

- Apply Asset Management principles;
- Highway;
  - Capacity - consistent with commitments within the regional MPO long-range plans, MDOT will reconstruct and widen I-94 from I-96 to Conner Avenue in Detroit, provide I-375 access improvements;
  - Border Infrastructure - expand the Blue Water Bridge plaza and provide corridor improvements across the Black River. Enhance the Ambassador Bridge Gateway plaza and rehabilitate I-75, and provide a new Detroit River International Border Crossing;
  - Modernization – bring bridges and roadway geometrics to current design standards;
  - Maintenance and Rehabilitation – implement scheduled and preventive maintenance programs;
- ITS – include or expand ITS along the urban portion of the corridor;
- Operational strategies such as increased incident management and maintenance of traffic practices during construction projects will be utilized;
- Continued participation in the metro Detroit Regional Concept for Transportation Operations (RCTO). A RCTO is the collaboration and coordination between transportation system managers responsible for operating the transportation system on a day-to-day basis;
- Modernize roadside facilities to meet the growing commercial needs of this corridor;
- Utilization of Vehicle Information Integration (VII) systems will be developed and tested within this corridor;
- Transportation Demand Management (TDM) and Transportation Systems Management and Operations (TSMO) improvements – work with local governments to implement TDM and TSMO strategies;

- Seek opportunities and implement low-cost operational improvements to increase roadway corridor mobility. These include but are not limited to geometric improvement, interchange improvements, ramp extensions, turning lanes, signal timing, visitor-friendly signage, improved incident management, and maintenance of traffic practices during construction projects;
- Improve overall corridor condition and operation for all modes;
- Coordinate improvements and management practices with key local stakeholder groups along corridors;
- Continue to provide financial and technical assistance to local agencies to help them preserve existing transit services;
- Develop strategies that can be implemented at the local level to innovate public transportation services to meet the unique needs/demands of the aging population;
- Support communication and coordination between local transit systems and between transit and intercity bus to improve connectivity and regional public transportation;
- Support coordination of transportation services and funding between local human service agencies and local transit agencies;
- Monitor unsubsidized intercity bus service and plan for continued losses in Greyhound's services;
- Provide feeder bus services in accordance with the Midwest Regional Rail Initiatives as passenger rail services is improved and funding becomes available;
- Continue to support the MichiVan program to provide commute alternatives and ease congestion;
- Enhance cooperation, connectivity and coordination between intercity bus and passenger rail; and
- Assist in local/regional efforts to advance plans for new regional and new downtown transit services.